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E85 M Roadster

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E85 M Roadster

Model: E85 M Roadster

Production: from March 2006

OBJECTIVES

After completion of this module you will be able to:

- Identify the changes between the E85 LCI and the M Roadster variant

Introduction

The Z4 M Roadster will be introduced to the market as from March 2006. Although the basic concept and proportions are identical to those of the E85 LCI, the new Z4 M Roadster differs considerably, not only in terms of performance.

For example, striking features include the precision lines of the bonnet as well as the front apron with large air inlets.

Further distinguishing features include:

- More distinct kidney grills.
- 18 inch wheels with exclusive M design
- Rear bumper cover with horizontal diffuser
- Chrome-plated pairs of exhaust tail pipes
- Three exclusive M exterior colors (Imola red, Sepang bronze metallic and Interlagos blue metallic).



Technical Data

Dimensions	
Vehicle length/width/height	161.9/70.1/51.3 in
Track, front/rear	58.5/59.7 in
Wheelbase	98.3 in
Weight	
Unladen	3197 lbs
Weight distribution, front/rear	50.7/49.3 %
Engine	
Liter/type/valves	3.2/DOHC inline 6/24
Bore/stroke	3.58/3.43 inch
Nominal output/rpm	330/7900 hp
Max. torque/rpm	262/4900 lb-ft
Performance	
Drag coefficient	0.38 Cd
Top speed ¹	155 mph
Acceleration ²	4.9 sec
Fuel Consumption ³	
Manual Transmission (mpg)	17.8/29 city/highway
Wheels	
Wheel dimensions - front (standard)	17 x 8.0
Wheel dimensions - rear (standard)	17 x 8.0
Material	Cast alloy
Wheel dimensions - front (optional)	18 x 8.0
Wheel dimensions - rear (optional)	18 x 8.5
Material	Cast alloy

1: Top speed limited electronically.

2: BMW test results. Actual acceleration results may vary, depending on specification of vehicle, road and environmental conditions, testing procedures, and driving style. These results should be used for comparison only and verification should not be attempted on public roads. **BMW urges you to obey all posted speed laws and always wear safety belts.**

3: EPA-estimated figures are for comparison purposes only. Your actual mileage will vary, depending on speed, driving habits, trip length, and driving conditions; actual mileage will most likely be lower.

Drivetrain

The 3.2 liter in-line 6-cylinder engine (S54B32) is known from the E46 M3. The high-speed concept of this engine allows the Z4 M Roadster to develop 330 bhp at 7900 rpm. The maximum torque is 262 lb-ft at 4900 rpm. The maximum speed is 8000 rpm.

With this engine, the vehicle has a power-to-weight ratio of 5.6 kg/kW and accelerates from 0 to 60 m/h in 4.9 seconds. The Z4 M Roadster's top speed is governed at 155 m/h.

For a sports car, the concept of a high speed engine is optimum in combination with a short overall gear ratio as the available engine torque can be optimally converted to thrust at the rear axle.

The Z4 M Roadster is equipped with the speed-sensitive variable differential lock as known from the M3.

The vehicle is equipped with a 6-speed manual gearbox with typical short shift paths is standard. An automatic gearbox will not be offered.



S54B32 Engine

A new engine management system, MSS70, has been specially developed for the E85 M Roadster. There are a few modifications compared to the MSS54 that are already known from the S54B32 engine of the M3 (E46).

The changes are:

- Alternator now controlled via a BSD interface (bit-serial data interface).
- The sport button is now resistance coded.
- The fuel pump is activated via the PT-CAN (separate diagnosable control unit).
- The previous oil sensor is replaced by the oil quality sensor.

Chassis

In line with the engine performance, the chassis of the Z4 M Roadster has been equipped with a sporty M chassis with variable differential lock.

Together with the extremely powerful brake system (from the M3 CSL) as well as the 18 inch aluminium rims (front 225/45 ZR18, rear 255/40 ZR18), the vehicle offers an outstanding overall concept in terms of driving dynamics.

The rear axle essentially corresponds to the rear axle known from the M3 E46. The front axle has been adapted from the Z3 M Roadster.

The steering is similar the steering of the M3 E46. The EPS system utilized in the base E85 is not used. The steering system in the M Roadster is a rack and pinion design with power hydraulic assist (pump driven by the engine via pulley/belt).

Run-flat tires are not available on the Z4 M Roadster. Instead the vehicle used the M tire mobility tire inflation kit for repairing punctures. This kit is located in the luggage compartment.



Body/Interior Equipment

The M sports seats as well as the M leather steering wheel are immediately noticeable at first glance in the interior. Further M-specific details include:

- M shift knob, illuminated
- Aluminium sill strips with M logo
- M color design of instruments (black dial face, white numerals, red pointer, white permanent illumination)
- Four exclusive M leather trim styles in full Napa leather.



Some exterior M-specific details include:

- Squarer lines on the hood: achieved by a new rolling/pressing process and gives the hoodline a distinctly aggressive appearance.
- A new front bumper cover with large cooling air inlets
- M badging on front fenders and rear trunk lid
- Elimination of the fog lights (not available due to air duct openings)
- M signature 4 exhaust tailpipes



Electrical System

A new feature of the electrical system is the position of the battery in the luggage compartment. The battery is maintenance free (as on the M5 E60).

Bus Systems

The Z4 M Roadster is equipped with the advanced crash and safety management system (ACSM) The ACSM is described in the training material for ST503 Passive Safety Systems.

E85 Bus Overview from 01/2006

